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Statement of inventorship and of right to grant of a patent

The Patent Office

Cardiff Road
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1. Your reference
IS 0753 - N M Green et al

2. Patent application number
(The Patent Office will fill in this part) 14 JUN 1997 **9712340.0**

3. Full name, address and postcode of the or of each applicant (*underline all surnames*)

Northern Telecom Limited
World Trade Center of Montreal
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Quebec H2Y 3Y4
Canada

Patents ADP number (*if you know it*)

If the applicant is a corporate body, give the country/state of its incorporation

Quebec, Canada

06258916600 1

4. Title of the invention
Telecommunications Network

5. Name of your agent (*if you have one*)

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

NortelPatents
London Road
Harlow, Essex
CM17 9NA

07079098001

Patents ADP number (*if you know it*)

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (*if you know it*) the or each application number

Country	Priority application number (*if you know it*)	Date of Filing (*day/month/year*)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application	Date of filing (*day/month/year*)

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (*Answer 'Yes' if:*

a) any applicant named in part 3 is not an inventor, or
b) there is an inventor who is not named as an applicant, or
c) any named applicant is a corporate body.
See note (d))

TELECOMMUNCATIONS NETWORK

This invention relates to telecommunications networks and in particular to a method and arrangement for providing digital audio and visual communication between terminals in such networks.

BACKGROUND OF THE INVENTION

A recent introduction in communications technology has been the introduction of network protocols for the delivery of multimedia services to terminals. In these protocols, the services are delivered to terminals over a local area network. The services are generally provided by other networks, e.g. N-ISDN or B-ISDN networks and, as the service providing networks will often be remote from the local area network delivering the services, there is a need for an information transport mechanism to carry traffic between the networks. This problem has been addressed by the development of the Digital Audio-Visual Council (DAVIC) specification 1.1, December 1996, which proposes the use of an asynchronous transfer mode (ATM) network as a transport medium.

There is an increasing need to interface local area networks of this type with ATM (asynchronous transfer mode) networks to take full advantage of the information traffic handling capabilities of those networks so that services provided by remote networks can be readily accessed.

In such an arrangement, interfaces must be provided both between the local area network and the ATM network and between the ATM network and the service provider network to take account of the different

connected, a service provider network arranged to provide service traffic, a circuit switched network provided intermediate said packet and service provider network, the method including transmitting said service traffic via a distributed gateway providing an interface between said circuit switched network and said service provider and packet networks whereby to effect access of said packet network to services provided by said service provider network.

According to a further aspect of the invention there is provided distributed gateway for a communications network configuration comprising a packet network to which a plurality of terminals are connected, a service provider network, a circuit switched network provided intermediate said packet and service provider network, said distributed gateway incorporating a shared set top unit for said terminals and a network interface unit whereby to effect access of said packet network to services provided by said service provider network.

The distributed gateway effectively provides a transparent coupling between the packet network and the service provider network.

Advantageously, the circuit switched network is an ATM network employing the AAL-2 protocol in which traffic is carried in minicells.

BRIEF DESCRIPTION OF THE DRAWINGS

An embodiment of the invention will now be described with reference to the accompanying drawings in which:-

Figure 1 is a schematic diagram of a multimedia communications system; and

In this configuration, a terminal or PC 11 connected over the packet network or LAN 12 to a shared set-top unit (STU) 21 initiates a multimedia call (audio, video, data) to another terminal or PC 14 at the other side of a network. Note that the PC 11 may also be incorporated directly into the STU 21. The H.323 gateway 16 is distributed over the ATM network so that the gateway functionality is shared between the set top unit (STU) 21 and the AAL2 Interface Unit (AIU) 22. In figure 2, the H.323 Gateway is distributed over a DAVIC delivery system, but in general the H.323 Gateway could of course be distributed over any ATM network.

As shown in the figure, the distributed gateway comprises the shared STU 21 and the AAL-2 interface unit 22. In some applications it may also incorporate the telephony service manager 23.

The AIU 22could be a gateway to another H.323 network, to the PSTN (to reach H.324 terminals), or to the N-ISDN network (to reach H.320 terminals).

In figure 2, the reference S3 indicates the path of DSM-CC messages for session set up. S2 indicates the path for control resource for TSM service configuration, user registration and for call signalling. S1 is a two way path for data resource to contain AAL-2 channels.

In a telephony service and user registration configuration, the Telephony service manager (TSM) 23 may evolve to become an H.323 gatekeeper depending on what protocols are defined for use between the TSM and the STU. If the TS Client Application is downloaded to the STU, it does not matter what protocols are used over the S2 flow. However, if the TS Client Application is not downloaded, then the protocols used must be defined.

3. The TSM asks the AIU to allocate the assigned AAL2 channels at the requested QoS

The AAL2 Negotiation Procedure (ANP) (or a simpler version of this) is used over AAL2 channel 0 to inform the STU the actual AAL2 channel number associated with each association tag.

The AIU initiates ring back until the call is answered, over the assigned AAL2 channel for audio.

The TSM also asks the AIU to make the call over the PSTN/N-ISDN/ATM network, and to use the association tags/AAL2 channels assigned.

4. The AIU places the call and connects it to the AAL2 channels corresponding to the association tags for the H.245 channel, and the audio, video and data channels.

The AIU responds to the TSM saying that the call has been placed and/or the AAL2 channels have been assigned/allocated, so that the TSM can respond to the TS Client Application process on the STU. Any extra calling information on the called party is sent as well. The STU may forward this to the H.323 terminal.

The protocols H.225, H.245, H.320, H.323, H.324 and H.363 above refer to the corresponding ITU-T recommendations.

Although a particular embodiment of the invention has been described, it will be apparent that modifications and variations could be effected by persons skilled in the art without departing from the spirit or scope of the invention which is defined by the appended claims.

CLAIMS:

1. A communications network configuration comprising a packet network to which a plurality of terminals are connected, a service provider network, a circuit switched network provided intermediate said packet and service provider networks, and a distributed gateway providing an interface between said circuit switched network and said service provider and packet networks whereby to effect access of said packet network to services provided by said service provider network.

2. A network configuration as claimed in claim 1, wherein said circuit switched network comprises an asynchronous transfer mode (ATM) network.

3. A network configuration as claimed in claim 1, wherein said ATM network is adapted to carry traffic in AAL-2 minicells.

4. A network configuration as claimed in claim 1, wherein said distributed gateway incorporates an AAL-2 interface unit and a shared set top unit for terminals served by said packet network.

5. A network configuration as claimed in claim 4, wherein said distributed gateway further incorporates a telephony service manager for establishing calls between said terminals and said service provider network.

6. A network configuration as claimed in claim 1, wherein said shared set top unit incorporates a client application for effecting signalling whereby to set up calls to said service provider network.

Figure 1 to accompany Abstract

ABSTRACT

TELECOMMUNCATIONS NETWORK

A communications network configuration comprises a packet network to which a plurality of terminals are connected, a service provider network, a circuit switched network provided intermediate the packet and service provider networks. A distributed gateway provides an interface between the circuit switched network and the service provider and packet networks whereby to effect access of the packet network to services provided by the service provider network.

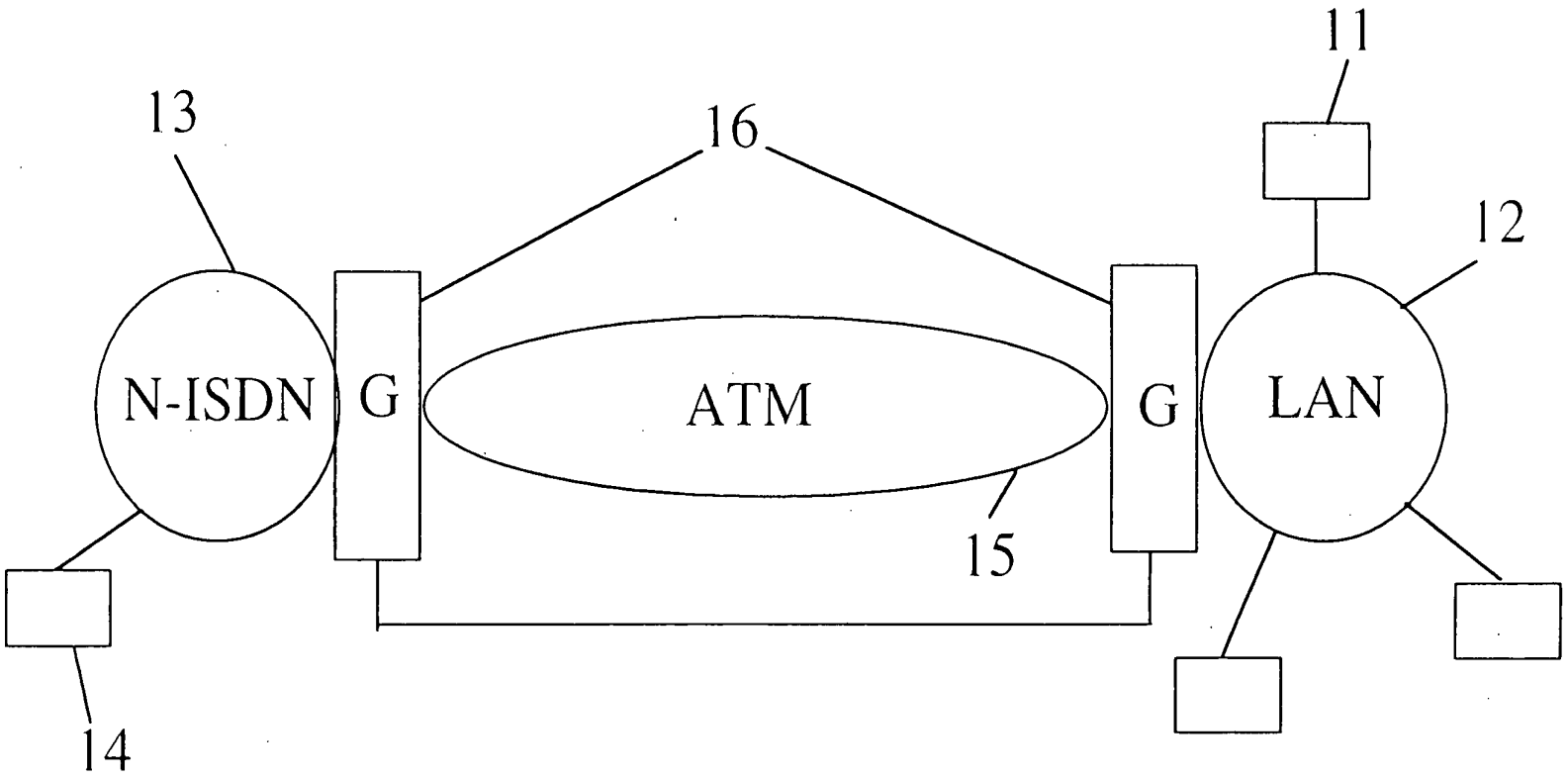
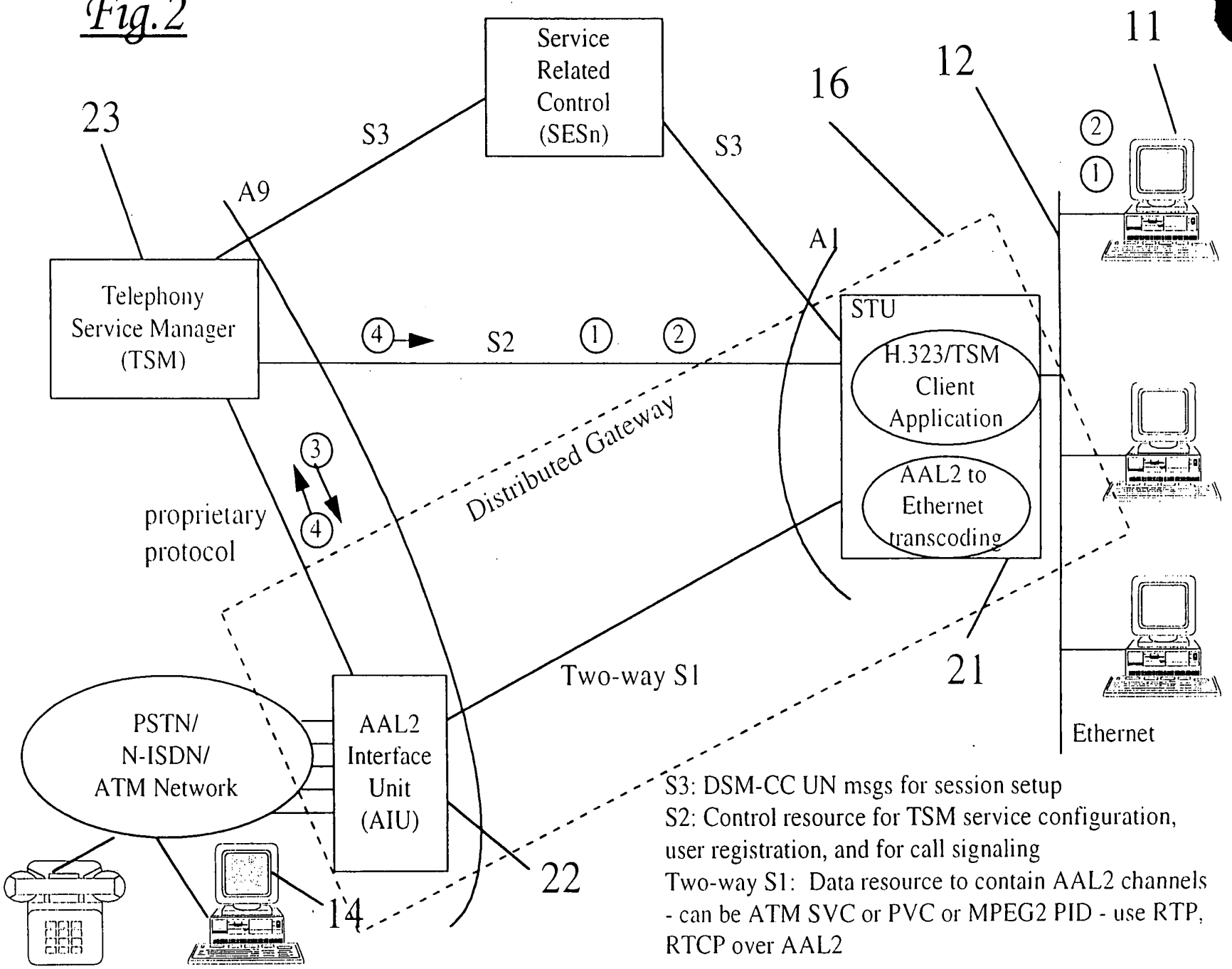


Fig.1

Fig.2



S3: DSM-CC UN msgs for session setup
S2: Control resource for TSM service configuration, user registration, and for call signaling
Two-way S1: Data resource to contain AAL2 channels - can be ATM SVC or PVC or MPEG2 PID - use RTP, RTCP over AAL2